Flightfax
ARMY AVIATION RISK-MANAGEMENT INFORMATION
OCTOBER 2004 ✦ VOL 32 ✦ NO 10

WHAT CREW CHIEFS REALLY WANT AND NEED

SPECIAL EDITION FOR NON-RATED CREWMEMBERS

Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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U.S. ARMY SAFETY CENTER

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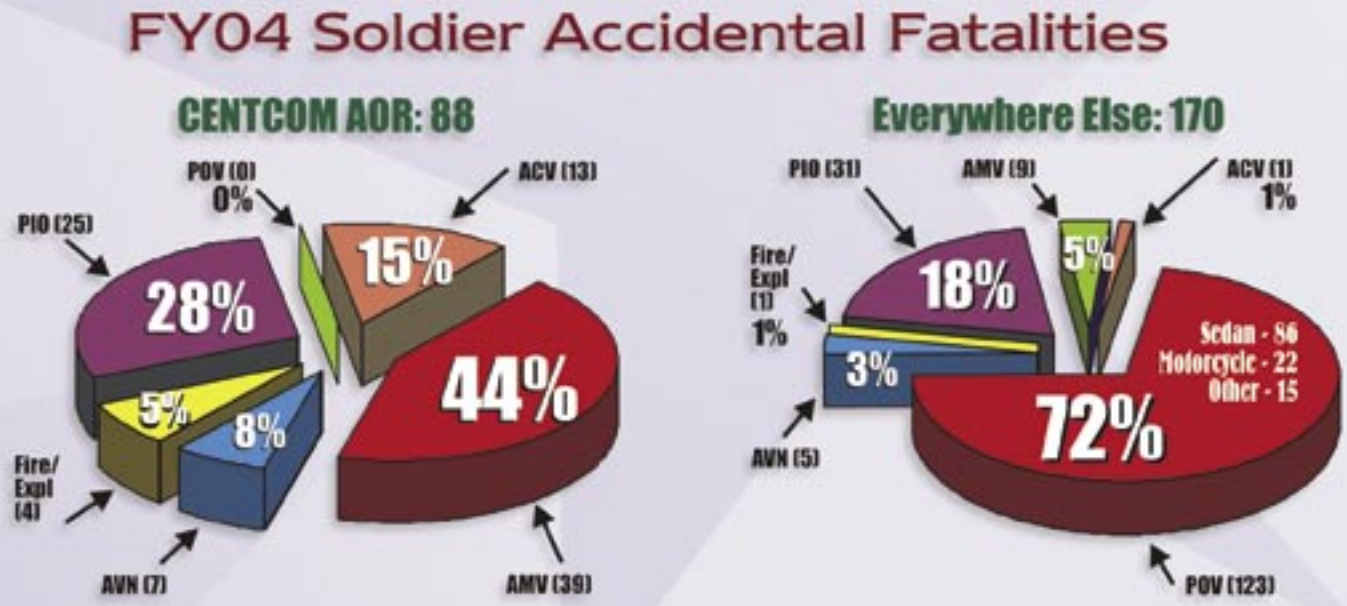
JOSEPH A. SMITH
Brigadier General, U.S. Army
Commanding

DASAF's Corner
FROM THE DIRECTOR OF ARMY SAFETY

What's in Store for Aviation Safety in FY05?

Our Army is at war and transforming. Army Aviation is making significant contributions in both arenas, simultaneously improving our safety record. Over the last 10 years, Aviation mishaps accounted for nearly 8 percent of all Army fatalities. As we close FY04, we've cut the number of Aviation fatalities by almost half. Out of theater, Aviation accounted for 3 percent of fatalities; in theater, Aviation accounted for 8 percent of the total fatalities. I directly contribute this success to aggressive risk management, improved pre-mission planning, and leader involvement. Most importantly, the Aviation community is shifting from lessons noted to lessons learned, and then applying those lessons to operations.

Clearly this is great work by the Aviation Team, from the bottom to the top! As we begin FY05, we need to cut our losses even further and we have the tools to make it happen. Two initiatives include the newly instituted Aircrew Coordination Training Enhancement (ACTE) program and the use of flight data recorders (FDR) as training tools. The new ACTE has nine interactive modules and is greatly improved from previous designs. The Directorate of Evaluation and Standardization (DES) started training the first unit on 24 August 2004. The use of FDRs is also moving forward. Fort Rucker is conducting a



*These statistics are current from the Safety Center database as of 21 Sep 04. Delayed reports could change these figures somewhat in the coming months.

Military Flight Operations Quality Assurance (MFOQA) test and the Safety Center will be following the progress closely. This technology already benefits our centralized accident investigations (CAIs), but its real potential exists as a training device. By downloading and viewing data from any particular flight on the schedule, we can identify training deficiencies and improve skills like power management, terrain flight, and emergency procedures. I believe this technology will have the greatest impact on trainers at the company and platoon level.

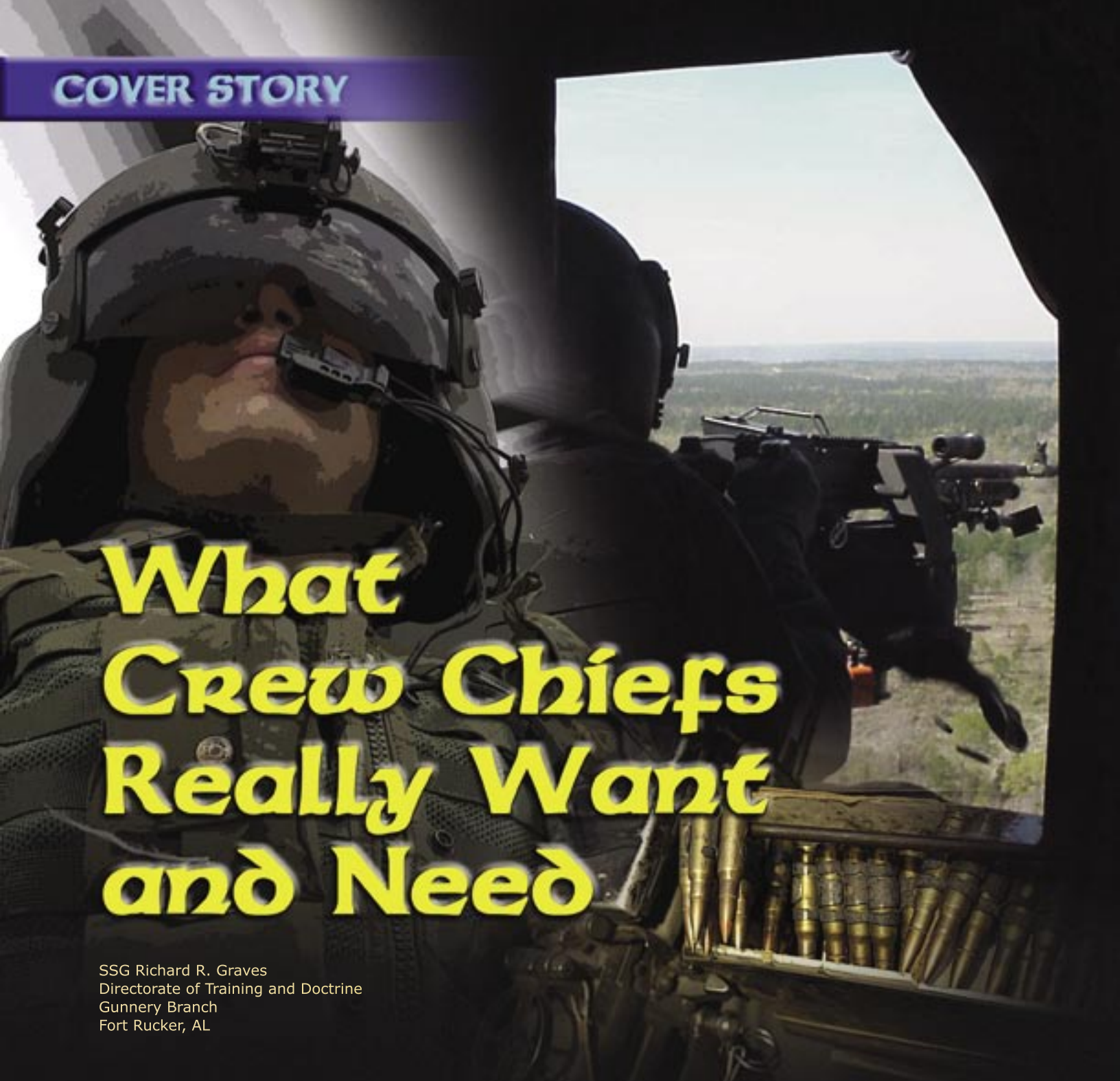
I love the quote by Albert Einstein, **"We can't solve problems by using the same thinking we used when we created them."** While sitting on NASA's Aeronautical Safety Assessment Panel, I noticed this same thinking held true during the Columbia investigation. NASA's research showed how losing shuttle foam over time eventually led to a disaster. NASA officials said, "The machine was talking to us, but unfortunately, nobody was listening."

At the Safety Center, we are listening! Since 1997, 43 percent of all Aviation Class A through C accidents involved crew coordination. Aircrew coordination training is available and we must maximize this information. Our aircraft collect large amounts of information through FDRs, we have to capture and apply this knowledge. New tools and innovative thinking are absolutely critical to the success of Army Aviation as it transforms to meet the future challenges of the Global War on Terrorism.

Aviation, you did a great job this year in the air; next year will be even better. Don't forget we also operate on the ground after those awesome flights. Almost 72 percent of our accidental fatalities involve Soldiers driving their POVs. Take the time to read my article this month in *Countermeasure* and see how we are attacking this problem. New innovations are being implemented at all levels of Army Safety.

Be Safe! Make it home and help our Army make 2005 our safest year in history!

Joe Smith



What Crew Chiefs Really Want and Need

SSG Richard R. Graves
Directorate of Training and Doctrine
Gunnery Branch
Fort Rucker, AL

The M60D machine gun has served Army Aviation since Vietnam. More than 10 years ago, the M240-series medium machine gun was fielded as the Infantry's medium machine gun. The M240 also has been fielded to all other branches of the U.S. military.

Efforts are underway to test and qualify a variant of the M240 for Army Aviation use aboard UH-60 and CH-47 aircraft. This version of the M240 will feature specific mounting configurations including ammunition storage, feeding, and collection designed specifically for aircraft use. Additionally, the aviation variant M240 will be convertible for ground use by an egress kit, which will be issued with every gun system. This kit will allow

conversion of the gun to ground use by replacing the aviation spade grip with a standard infantry butt stock and trigger assembly. The M240 will also have a newly designed bipod. The gun can be converted from aviation to ground configuration in less than 60 seconds without tools.

The M240H is a 7.62 mm belt-fed, gas-operated, air-cooled, fixed headspace weapon. Rate of fire is operator-selected and varies from 650 to 950 rounds per minute. Maximum effective range is 1,100 meters, with a maximum range of 3,725 meters. The M240H system weighs slightly more than its predecessor. The M240 family of machine guns has been cited as one of the most reliable machine gun systems in the world today.

With the support of the U.S. Army Aviation Technical Test Center (ATTC), flight testing was conducted at Molinelli Aerial Gunnery Range Complex at Fort Rucker, AL. Helicopter gunnery tables were completed in accordance with Field Manual 3-04.140, *Helicopter Gunnery*. The weapon system was test flown aboard UH-60 and CH-47 aircraft in a variety of flight regimes and profiles including ground, hover, takeoff and landing, moving, and running fire.

Before commencement of flight testing, extensive ground tests were conducted at Redstone Arsenal, AL, and Picatinny Arsenal, NJ. Data was gathered that allowed specific design criteria to be developed to respond to Army Aviation user requirements. The goal is a reliable replacement system for the M60D.

In addition, the AN/PEQ-2C Target Pointer, Illuminator, Aiming Light is being evaluated for use with the M240H. Also in use by Infantry and other ground forces, this device decreases the amount of time required to place initial rounds on target.

The mission of the M240H is to improve the self-protection capabilities of Black Hawk and Chinook helicopter crews by replacing the aging M60D. The Gunnery Branch, U.S. Army Aviation Center, and ATTC have played an integral role in the testing and development of the M240H. The end result will be a superior replacement to the M60D and a reliable and trustworthy combat multiplier for UH-60 and CH-47 crews. ♦

—For more information, please contact SSG Graves, USAAVNC Master Door Gunner, at DSN 558-1897 (334-255-1897), or by e-mail at richard.graves@rucker.army.mil. For all aviation gunnery topics and issues, see the Aviation Gunnery portal on Army Knowledge Online. From the Knowledge Collaboration Center page, select TRADOC/Aviation/Aviation Gunnery.

BSAU: Improving Aircrew Situational Awareness During Brownout

LTC Patrick Mason
Fort Eustis, VA

This past January, *Flightfax* presented some sobering statistics showing the high percentage of accidents caused by brownout. To combat this trend, BG Joe Smith, Director of Army Safety, presented three initiatives in the attack on brownout: aircrew coordination training, the Tactile Situation Awareness System, and advanced simulation. One additional initiative not discussed is the Brownout Situational Awareness Upgrade (BSAU) system. In response to input from the field, BSAU was initiated by the Cargo and Utility Program Management (PM) Offices to address brownout by creating a system to enhance crew situational awareness in a degraded visual environment. The Aviation Applied Technology Directorate (AATD) was brought onboard to develop, integrate, and test this system of sensors and displays.

With an initial scope, AATD set forth attempting to maximize the use of qualified military hardware and applying the best attributes of proven commercial technologies. Block I of the BSAU program focused on providing flight symbology for the CH-47D and UH-60A/L. As symbology systems have long flown in the AH-64A/D and various Special

Operations Aviation platforms, there was ample data on symbology layouts, sensors, and displays. Using this information, the task focused on optimizing the symbology set for landings and takeoffs in a brownout environment, something quite different from the design philosophy of previous systems. While success hinged on creating a responsive and intuitive low airspeed symbol set to combat brownout, the integration of sensors and components to drive the symbol set remained paramount.

Following an initial crew station working group, a draft symbology layout was created. Having this defined, each symbol was traced back to a sensor or input critical to drive the selected parameter with the required precision and accuracy. This linkage, from sensor to symbol and then display, formed the basis of the initial system architecture. An iterative process of test, fix, and test was then used to drive the design to a workable symbol set and final system architecture. Keys to this effort were verifying the accuracy and precision of the input data, thereby ensuring an intuitive display—thus reducing the pilot's cognitive workload and optimizing the input and symbol sensitivity to allow for smooth and precise control inputs. In the end, the original symbol set, along with several sensor inputs, had been modified significantly.

This process again reinforced how complex and difficult the transition from paper to application can be. Throughout this process, the TRADOC System Manager (TSM), Directorate of Evaluation and Standardization (DES), and the Aviation Technical Test Center (ATTC) assisted in the design and system evaluation. Additionally, these assessments addressed techniques, procedures, training requirements, and any sustainability and maintainability issues.

The final BSAU Block I system consisted of a blended inertial GPS low-speed symbology set driven by a Honeywell embedded GPS/INS and displayed on a Rockwell Collins multi-functional display (MFD), replacing the analog horizontal situation indicator in both pilot stations of the UH-60A/L and CH-47D. The BSAU symbology could also be displayed on an EFW flat day heads-up display that connects to the standard night vision goggle (NVG) mount for the HGU-56P helmet or as a selectable page on the current AN/AVS-7 heads-up display.

The real test of the system's attributes came during actual brownout landings at Yuma Proving Grounds (YPG), AZ. Using the Kofa Dust Course, noted for having brownout conditions most similar to both Iraq and Afghanistan, day and NVG brownout approaches were conducted. As shown in the sequence of photos, test cameras installed inside and outside the aircraft captured each approach. From outside the aircraft, the first set of images depicts the magnitude of the CH-47 in brownout conditions. Concurrently, the second set of images shows the view through the pilot's canopy. This clearly illustrates the degradation in the visual cueing environment and lack of outside visual references to assist with descent rate, lateral drift, and aircraft attitude.

Finally, a camera placed over the pilot's shoulder captures the symbology on the MFD. As the aircraft descended through 15 feet AGL and began to encounter the dust cloud, the symbology continued to provide those critical elements necessary to retain situational awareness. As the aircraft decelerated, the system automatically scaled in velocity, providing better resolution to the aircrew. Then, monitoring heading, velocity, lateral drift, and rate of descent, the

pilot successfully continued the approach to the ground with minimum forward airspeed and lateral drift. While the system proved its value during this and many other approaches, good crew coordination, briefing of go-around procedures, and power management remained critical tasks.

No level of technology—even the most sophisticated automated takeoff and landing systems—can be successful without proper aircrew training. Crews must not only understand how to manage the system, they must be confident in the accuracy of the information presented, their ability to intuitively and correctly assess the aircraft state, and then decisively apply the appropriate action. While BSAU Block I isn't a "silver bullet" guaranteed to eliminate brownout incidents, testing has shown it significantly increases aircrew situational awareness during degraded visual operations. Coupled with the right techniques, procedures, and training, the BSAU should prove a tremendous weapon in attacking brownout.

Planned BSAU Block II enhancements will investigate "see-through" technologies such as long-wave forward-looking infrared (FLIR) and 94 GHz radar. During the previous brownout testing, two infrared cameras were installed on the UH-60A evaluation aircraft and included in the YPG evaluation. Additionally, a fused FLIR/94 GHz radar is being considered by PM Cargo for the CH-47D. Finally, Block III upgrades could include flight control augmentation provided by a digital automatic flight control system and a hover coupler system. ♦

—LTC Mason is the Chief of Prototyping and Integration for AATD, Fort Eustis, VA. He may be reached at 757-878-2015 or by e-mail Patrick-mason@us.army.mil. Project officers for this test were MAJ David Wolons (UH-60) and MAJ Chuck Walls (CH-47).

What Drives AGSE?

CW4 James Pruitt
Directorate of Combat Developments
Fort Rucker, AL

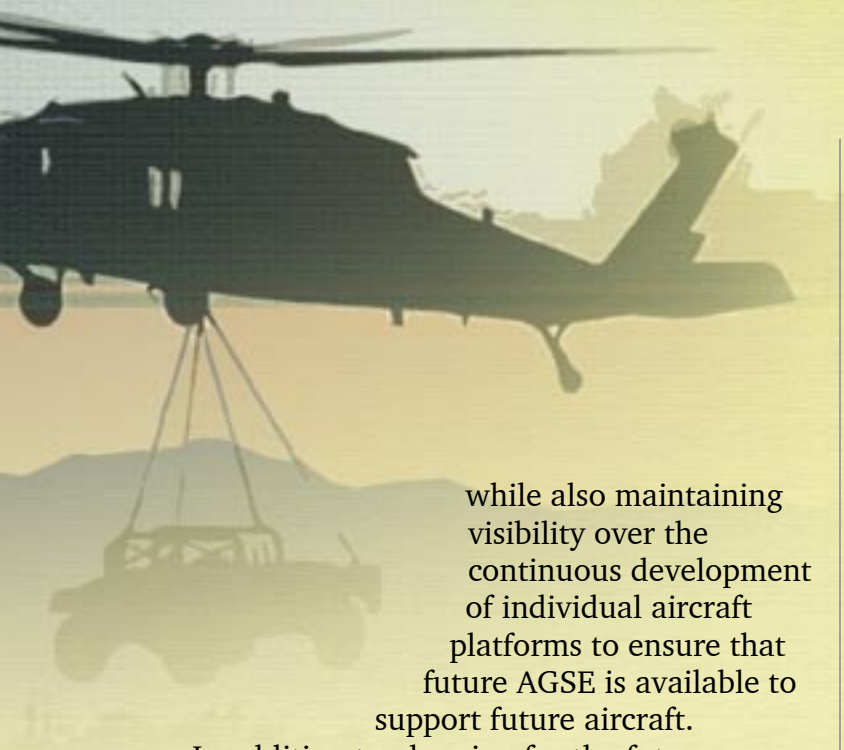
As long as there is Army Aviation, maintainers will always need Aviation Ground Support Equipment (AGSE). AGSE requirements are driven by the needs of the aircraft maintainer, and each flight hour logged requires many maintenance man-hours to achieve success. These requirements are articulated and fulfilled by the coordinated efforts of several Army offices. The first is the AGSE Branch in the Materiel and Logistics Systems Division (MLSD), Directorate of Combat Developments (DCD) at Fort Rucker, AL.

The mission of the AGSE Branch is to manage requirements for aviation logistics and ground support systems. The AGSE Branch is responsible for writing requirements and monitoring on- and off-aircraft equipment necessary to ensure the operational readiness of current and future force Army Aviation platforms. The AGSE Branch oversees materiel changes and the development and integration of systems to ensure they adequately support the safe operation of rotary- and fixed-wing aircraft.

DCD also develops and documents all AGSE requirements and monitors all related system programs throughout their life cycle to ensure currency. This includes the standardization of common tools, test equipment, and ground support equipment to minimize the logistics tail while maximizing the maintainer's capabilities in the tactical environment. The AGSE Branch serves as the Army's maintainer/user representative and the U.S. Army Aviation Center's subject matter expert for all existing AGSE systems.

To accomplish this mission, the DCD works closely with Department of the Army (G4), other Training and Doctrine Command (TRADOC) DCDs and system managers, the U.S. Army Aviation and Missile Command (AMCOM), Program Executive Office Aviation's individual aircraft product managers (PM), and the Test, Measurement, and Diagnostic Equipment Activity Program Executive Office Combat Support and Combat Service Support. The combined effort of these offices allows for the development of new systems and the sustainment of current systems, and also ensures that AGSE provided to Soldiers is reliable and supportable. Once requirements are written and approved, it becomes the responsibility of PEO Aviation's PM AGSE, product manager for all AGSE, to procure a materiel solution to meet the requirements.

PM AGSE is a newly provisional product management office officially stood up in December 2003 and was once known as the Weapons System Management Office. The PM is charged with total life cycle management responsibility for all Army AGSE and fields hardware that meets all of the DCD documented requirements. The PM AGSE works in a unique environment and faces challenges vastly different from those of a traditional aircraft PM. Unlike a platform PM whose entire effort focuses on one aircraft, PM AGSE is responsible for over 26 individual systems whose only commonality is that they all support Army aircraft. PM AGSE responds to user requirements and to rapidly changing state-of-the art needs in aviation maintenance,



while also maintaining visibility over the continuous development of individual aircraft platforms to ensure that future AGSE is available to support future aircraft.

In addition to planning for the future, DCD and PM AGSE have responded to real-world requirements associated with Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). We initiated the rapid fielding of several key pieces of equipment to assist aviation maintainers in the performance of their duties as both warriors and highly trained aviation maintainers. Some of the contributions we've made to the Global War on Terrorism include:

1. Procurement, assembly, and shipment of 11 new battle damage assessment and repair kits.
2. Accelerated fielding of 11 unit maintenance aerial recovery kits.
3. Fielding of 66 shop equipment contact maintenance equipped vehicles.
4. Complete overhauls of 32 aviation vibration analyzers (AVA) for direct return to deployed OIF/OEF units.
5. Reduction in the AVA depot turnaround time for overhaul, resulting in a quicker turnaround to the unit.
6. Completion of the RESET of 18 aviation ground power units and placement of four units in USAREUR to be used as floats for OIF\OEF units.

PM AGSE recently completed the fielding of the digital aircraft weighing system, eliminating the need for load cells, jacks, and leveling devices, as well as the fielding of modernized non-destructive testing equipment.

In looking to the future, DCD has received DA approval for the aviation turbine engine diagnostic system, which allows users the ability to rapidly troubleshoot and isolate aircraft turbine engine faults that will reduce the number of false removals due to faulty troubleshooting practices. Approval also has been received for the purchase of three test aircraft for cleaning and de-icing systems. This equipment will provide the capability to clean aircraft, as well as a means for hasty decontamination while collecting wastewater runoff, which is then filtered for re-use and meets all environmental requirements.

Aviation is relevant for the future force, providing combat support and combat service support maneuver, maneuver support, and maneuver sustainment capabilities across the full spectrum of operations. Its inherent versatility, maneuver advantage, and warfighting effectiveness will influence all dimensions of the future battle space. Highly motivated aviation Soldiers, equipped with modern systems and trained to world-class proficiency, will provide commanders at all levels an exponential increase in lethality. This, coupled with leadership, will harness the technological revolution of the digital battlefield and provide commanders the ability to achieve decisive victory.

To help ensure future mission success in developing and sustaining AGSE, aircraft maintainers are invited to provide input. To facilitate this, PM AGSE established an AGSE List Server (also monitored by DCD personnel) that is designed for units to post questions and concerns regarding AGSE and receive prompt assistance. To subscribe, please provide your name, duty position, and telephone number to either of the AGSE List Owners: Mr. Don Hamblin (don.hamblin@peoavn.redstone.army.mil) or Mr. John McGuire, (john.mcguire@peoavn.redstone.army.mil). ♦

—CW4 Pruitt is the assistant branch chief for the AGSE Branch of MLSD. He is assigned to HHC, 1/210 AVN, Fort Rucker, AL. He may be contacted by calling DSN 558-9276 (334-255-9276) or e-mail james.pruitt@rucker.army.mil.

UH-60 Troop

Still Safeguarding Our Crewmem

Joseph Licina
U.S. Army Aeromedical Research Laboratory

The UH-60 design sought to guarantee the first truly crashworthy cabin seating for helicopters in the history of the industry. Now that the UH-60 has been in the field for more than two decades, perhaps it is time to review the effectiveness of its troop seating. During the January 2004 Aviation Safety Investment Strategy Team (ASIST) review of UH-60 accidents, it was noted by the U.S. Army Aeromedical Research Laboratory (USAARL) Aviation Life Support Equipment Retrieval Program (ALSERP) personnel that in a single aircraft that crashed, although there were no fatalities, 9 of the 12 troop seat pans in the aircraft experienced varying degrees of failure of the cloth portion of the troop seats. The most injurious trauma sustained was by a passenger who literally tore through the cloth seat pan cover (photo 1).

Although Technical Manual (TM) 1-1500-204-23-1 prescribes a 24-month service life for raschel knit seat covers in other aircraft, there are no service life criteria for UH-60 polyester seat covers. Could a 20-plus year exposure to ultraviolet rays, contamination, hangar rash, and general use be a cause for concern? The ALSERP team was beginning to look into possible fleet-wide problems when an accident in July 2003 led to the discovery of a gunner's seat with multiple problems.

The following individual discrepancies are all from a single seat involved in a 2004 mishap, with some related to serviceability that had been missed by numerous required inspection levels:

■ **Seat bottoms**. The criteria for tear or damage limits are in TM 1-1500-204-23-1. Paragraph 9-20e(2)(a) reads: "…Replace seat bottoms with damage greater than 2½ inches long x 1 inch wide." Photo 2 illustrates the accident aircraft seat in clear violation of the limits stated above. In addition, paragraph 9-20e(d) also states: "Damage that is close to the edge of the seat cover which has insufficient space to allow a complete patch pattern will not be repaired."

The location of the pictured tear, even if less than 2½ inches, would be cause for replacement. The unauthorized tape repair in the photo was in place before the mishap. The tearing was not caused by accident loads.

■ **Web retainers**. TM 1-1520-237-23 addresses the seat cover as a single unit without

Photo 1. UH-60 passenger seat bottom failure

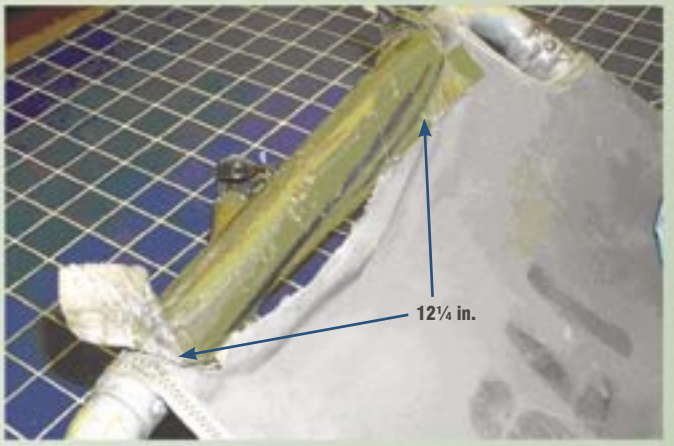


Photo 2. UH-60 crew chief seat with extensive tear and unauthorized tape repair

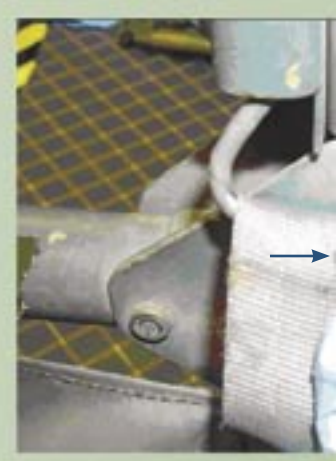


Photo 3. Web retainer with full t

P SEATS:
bers Beyond Two Decades?

delineation of the seat web retainers, etc. Paragraph 2-4-46.12.2e states: "Check fabric for tears, holes, and loose or missing stitching… ." TM 1-1500-204-23-1, paragraph 9-20e(2)(a) further articulates: "Inspect for cuts, tears, punctures, burns, and broken stitches… ." The web retainer in photo 3 shows an unacceptable full thickness hole caused by repeated wear as a result of contact with the seat back frame screw head.

■ **Fabric retaining screws**. TM 1-1520-237-23, paragraph 2-4-46.12.2e states: "Check seat pan for loose or missing fabric retaining screws. Replace missing screws… ." Photo 4 provides an illustration of loose and missing screws from this seat bottom, which should have rendered this seat unserviceable.

■ **Cable condition**. The following advice regarding cable condition is given in TM 1-1520-237-23:

(1) Para 2-4-46.12.2j states: "Check cables for broken strands. If three or more strands are broken, replace cable."

(2) Para 2-4-46.12.2k states: "Check cables for kinks. If cables cannot be straightened by hand, replace damaged cables."

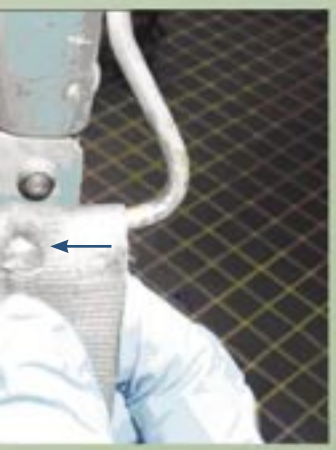
In this same seat, all the cables complied with the policy on broken strands, although one of the cables (not included in the photo) had two broken strands. With regard to kinks, photo 5 shows a cable with an area of kinking that was unsatisfactory and should have been replaced.

■ **Shoulder harness inertia reel**. The shoulder harness inertia reel on this seat would not retract adequately and was unserviceable in accordance with the daily inspection criteria in TM 1-1520-237-PMS-1, sequence 2.3, which states: "Inspect gunner's seat inertia reels for proper operation."

Any single unsatisfactory condition cited in the above listing could result in injury to the occupant during a mishap. This single seat had five violations. How do your seats look?

The USAARL ALSERP team has proposed a study to assess the condition of UH-60 troop seats in the field with limited destructive fabric testing to assess protection levels afforded by older seats. This proposal is presently in coordination with and under review by the UH-60 Program Manager's Office. ♦

—For more information, contact Mr. Licina or LTC Mark Adams, Aviation Life Support Equipment Retrieval Program, U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL 36362-0577, (334) 255-6893/6815 or DSN 558-6893/6815.



hickness hole and screw head

Photo 4. Loose and missing fabric retaining screws on seat bottom

Photo 5. Permanent kinking of seat cable

Air Warrior– What's Ahead?

CPT Ozzie Peacock
Directorate of Combat Developments
Fort Rucker, AL

The Soldiers who stand guardian over the freedoms we enjoy are our country's most precious asset. Our Nation, when faced with a choice, will always unequivocally choose to place the most advanced technology in the hands of the Soldier to increase survivability and enhance effectiveness on the battlefield. Rapid technological advances in weapons, weapon sighting systems, chemical and biological protection, ballistic protection, communications, navigation, and other areas all serve to complicate the picture if these capabilities are not managed properly.

The Army recognized the need to manage and integrate worn, consumed, and emerging technologies that directly impact the Soldier. The core Soldier capabilities development documents capture capabilities common to all Soldiers and serve as the baseline. The Maneuver Sustainment Soldier system captures the unique capabilities of over 100 different sustainment and service military occupational specialties. The Maneuver Support Soldier system captures the unique requirements of the Chemical, Engineer, Military Police, Field Artillery, Signal, Military Intelligence, and Air Defense Artillery specialties. The Ground Soldier system captures the unique requirements of the Infantry Soldiers, our country's premier ground capturing Soldier. The Mounted Warrior Soldier system captures the unique requirements of personnel who fight tank, scout vehicle, and Stryker systems. Air Warrior is Aviation's warfighter system and the only system currently being fielded.

The Air Warrior System is a modular, mission tailorable ensemble that places the aviator at the leading edge of integrated capabilities. Previous capabilities while wearing chemical, biological, radioactive, nuclear, and explosives (CBRNE) aviation life support equipment (ALSE) and mission equipment permitted only 1.6 hours of flight before heat stress degradation of aircrew performance. Air Warrior makes it possible for Aviation personnel to conduct their mission in complete MOPP 4 for 5.3 hours without degradation due to heat stress.

The Air Warrior ensemble is the culmination of ideas and input from the field, the Directorate of Combat Developments, and the Product Manager Air Warrior office. At the heart of the Air Warrior system is the microclimate cooling system, consisting of the cooling unit and the cooling garment. The microclimate cooling unit is mounted to the airframe and pumps a chilled liquid through the cooling garment, which is worn next to the aviator's skin. Despite the layering of survival and protective equipment, which include the chemical protective undergarment, aviation battle dress uniform, soft body armor, 30-caliber

ballistic upgrade plates, overwater mission equipment, and primary survival gear carrier (survival vest), the Air Warrior system is capable of keeping aircrews' core temperature at a level that prevents mission degradation.

Block II Air Warrior includes technology insertion of the joint protective aircrew ensemble (JPACE), the joint service aircrew mask (JSAM), the combat survivor evader locator (CSEL), aircraft wireless intercom system, and the electronic data manager (EDM). The JPACE is a flame-resistant chemical and biological (CB) protective flight garment that provides increased CB protection and wear time while reducing weight and heat stress. The JSAM is a protective mask that increases the field of view and provides a don and doff capability while in flight. The JPACE and JSAM are joint programs that are designed to be worn across 135 different DOD aviation platforms. The aircraft wireless intercom system permits crew chiefs and crew engineers to perform their duties in and around the aircraft while reducing the snag hazard associated with a communication cable.

The CSEL will replace the current survival radio during Block II. The CSEL offers numerous improvements over the current survival radio including automatic GPS reporting of position, over-the-horizon, two-way secure data communications (text messaging), waypoint navigation, a selective availability anti-spoofing module, and terminal guidance to downed aircrew position.

The EDM incorporates numerous enhancements, the most critical being fratricide prevention through its interface with blue force tracking. Through limited user testing in Iraq, the EDM has proven to be the display of choice for blue force tracking information to aircrews. Spiral two of the EDM has refined some features and added others. It makes mission rehearsals and fly ahead possible while in the tent or other waiting area. Internal software is upgradeable without going through an airworthiness release process.

Other Windows®-based applications also can be run on the EDM. The EDM is capable of displaying a moving map with map overlays that display routes, threats, and points of interest. The EDM automates the functions of the E6B flight computer. It is capable of VMF messaging, which includes automated call for fire, free-text (chat), spot reports, and position reports. The system is capable of in-flight mission changes through use of FalconView software. It is also capable of USB data exchange and storing handwritten notes.

Additionally, the EDM will compute aircraft performance planning cards, as well as aircraft weight and balance. It is capable of storing checklists, technical manuals, route cards, engagement area sketches, and .BMP or .PDF files. The EDM has an 800 GHz processor that will be spiraled to 1.2 GHz. A virtual keyboard will be added through a later spiral as well. The EDM performance capabilities are enhanced by 512 MB RAM and is capable of storing up to 20 GB of data on an internal hard drive. Cockpit efficiency and multi-tasking ability is increased for aircraft with multi-function displays (MFD) by displaying certain types of information on the EDM instead of the MFD. The ability to display information on the EDM instead of the MFD increases crew safety through cockpit efficiency.

Block III of the Air Warrior system will add day heads-up display, advanced night vision goggles with 95 x 38-degree field of view, ballistic eye protection, liquid waste disposal, and external audio reception. All the capabilities provided by the Air Warrior system increase the safety, efficiency, effectiveness, survivability, and situational awareness of aircrews on the modern battlefield. The Air Warrior system is a state-of-the-art integrated ensemble that ushers in a new era of equipping Soldiers. ♦

—CPT Peacock is the project lead for the Directorate of Combat Developments in regards to the Air Warrior System. He is assigned to HHC, 1/210 AVN, Fort Rucker, AL. He may be contacted by calling DSN 558-1456 (334-255-1456) or e-mail peacocko@rucker.army.mil.

Air Warrior–
Response from the PM

John Jolly and Paul Pedersen
Senior Logisticians for Air Warrior
Redstone Arsenal, AL

Air Warrior (AW) is the first integrated Soldier system for all Army helicopter crewmembers. It provides modular life-support equipment that can be tailored for all operational and climactic environments to include overwater, as well as chemical and biological (CB) areas. The AW system provides increased personal protection while decreasing weight and bulk. In hot CB environments, AW aircrews have improved flight time in MOPP 4 equipment from 1.6 hours to 5.3 hours, a 330 percent increase in the wearing of protective gear wear over previous clothing.

The Air Warrior system and components include the following:

■ **Survival equipment** include the primary survival gear carrier with integrated extraction harness and various survival, signaling, and communications equipment, as well as flexible body armor with a hard ballistic upgrade plate providing .30-caliber armor piercing protection.

■ **Microclimate cooling system (MCS)** includes a microclimate cooling garment (MCG) that is worn against the soldier's torso, and a microclimate cooling unit on the aircraft that chills water and pumps it through small tubes embedded in the MCG.

■ **Modular integrated helmet display system (MIHDS)** includes laser eye protection, communications earplugs, and a night vision device mount.

■ **Overwater survival subsystem** includes a low profile personal flotation device, an inflatable raft (LRU-18U), and an emergency underwater breathing device.

■ **Nuclear, biological, chemical (NBC) protection** includes a modified CB protective undergarment, M48 or M45 protective mask with blower, gloves, and overboots.

■ **Electronic data manager (EDM)** or digital kneeboard provides non-bussed aircraft with near real-time battlefield information including blue force tracker, as well as a variety of other functions designed to meet the needs of specific cockpits.

■ **Aviation clothing items** include the modified aviation battle dress uniform and the aircrew cold weather system.

Air Warrior is a new generation of integrated, mission-tailorable, combat-effective life support equipment designed to improve aircrew endurance, mobility, and performance. It facilitates full-spectrum dominance by providing the capability to utilize the full performance of the aviation platform. Air Warrior counters the use of asymmetrical strategies that could prevent or disrupt aviation operations. Air Warrior addresses the seven measures of effectiveness of the objective force: responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability.

In development for nearly 5 years, Air Warrior finished operational testing in 2003 and is now in full-scale production. Due to Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF), fielding of the Air Warrior ensemble and other ongoing projects has been accelerated to equip deploying units. In some instances, operational testing and fielding were completed in combat areas. For example:

Helicopter oxygen system (HOS) for wartime deployments

Within days of the 11 September 2001 attacks, the AW Product Office had to provide the 160th SOAR(A) with parts and extra helicopter oxygen systems. This system had been fielded 10 years ago in very limited numbers. The HOS allows helicopter crews to fly safely above 10,000 feet mean sea level. Without

this system, pilots and crews could suffer severely impaired performance, unconsciousness, and even death. Shortly after the 160th SOAR(A) received their HOSs, our office had to organize and get more systems for the 101st AASLT Division that activated for OEF in late Fall 2001.

Task Force (TF) Corsair, with most of their aircraft from the 2nd of the 82nd Aviation Battalion, requested 15 systems from our AW office. They also needed HOSs for their Afghanistan mission, but there was no more available. The logistics section of AW-PM took it personally and found six complete systems and rebuilt nine others in the B17 account to get the 15 systems Task Force Corsair needed. With Red River Army Depot out of funding to repair these systems, the PM-AW Logistics staff worked nights and weekends to fix the systems themselves, and then ensured they were properly cleaned and tested, all to meet the 82nd Airborne Division's very tight deployment schedule.

Deployment to Afghanistan in support of OEF

The TF Corsair commander was so impressed with the work by the PM-AW product office concerning HOS issues that he again called upon them after he deployed into Afghanistan. Once in theater, the TF Corsair commander requested that the PM-AW office assist him with HOS and other aviation life support equipment (ALSE) issues that concerned him. PM-AW rapidly deployed three soldiers to Afghanistan to assist. This team met with the ALSE officer and ALSE NCO for the Task Force for days to understand and resolve issues, review combat conditions, learn field expedient ALSE maintenance procedures in place, learn the root causes of issues, interview users in all deployed helicopter types, and fly missions with the unit to gain firsthand experience.

In addition, the PM representatives discussed current upgrades and provided samples of Air Warrior equipment for limited user evaluations. As a result of this deployment, TF Corsair and all Army ALSE maintainers benefited from the reclassification of nearly 60 lines of supply from Class II to Class IX. TF Corsair was also able to receive the latest HGU-56/P helmet and HOS data to ease maintenance procedures, while also receiving a prototype AW system. In addition, the PM-AW office received confirmation that many of the products fielded over the last 10 years in the ALSE field were basically working.

Electronic data manager

As a result of the 101st AALST Division's direct experience in OEF, the need for an electronic way to provide cognitive decision aids and a mission rehearsal tool for the 101st AASLT Division was outlined. This capability was also desired within 60 days! Meanwhile, PM-AW was developing a similar capability as part of the AW Block II upgrades. PM-AW was able to set up a limited user evaluation with 11 separate commercial off-the-shelf (COTS) devices in order to meet the tight timeline. When these devices proved not to be exactly what was needed and not rugged enough for combat conditions, the 101st AASLT Division and PM-AW teamed together to build and evaluate the digital kneeboard. In addition to the 101st, PM-AW sought all users and possible consumers of this technology for Aviation use and teamed with several other product offices and the other services to satisfy this requirement. As a result of the determination of a small cell within PM-AW, the Army and the 101st AASLT Division received 49 digital kneeboards by 30 Sep 03 in the OIF theater. The digital kneeboard provided a moving map display, electronic note pad, and displayed Blue Force Tracker (BFT) data in the cockpit. PM-AW and PM BFT personnel assisted in the training and installation of these devices. The results from the use of the digital kneeboard in actual combat conditions have been incorporated in a newer, much improved version. This upgraded version is now the electronic data manager (Spiral 2), and was tested at Fort Rucker, AL, in June 2004.

The Spiral 2 EDM provides all the capabilities of the digital kneeboard except software upgrades and in a much smaller and lighter package. In addition, the Spiral 2 EDM is NVG compatible, yet daylight readable and has a Universal Serial Bus (USB) port, which allows for mission planning on the aviation mission planning station to be easily transferred to the Spiral 2 EDM. ♦

—Mr. Jolly and Mr. Pedersen are both senior logisticians for the Product Manager's Office for Air Warrior. Mr. Jolly may be contacted by calling DSN 746-6538 (256-876-6538) or e-mail john.jolly@peoavn.redstone.army.mil. Mr. Pedersen may be contacted by calling DSN 746-6943 (256-876-6943) or e-mail paul.pedersen@peoavn.redstone.army.mil.

Laser Pointers — "Buyer Beware"

CW5 (Ret) Bill Ramsey
U.S. Army Safety Center

Today, laser pointers come in all shapes, sizes, and classes. They have become more powerful, smaller, cheaper, and very accessible. Just about anyone can go out and buy a laser pointer. Because of this, the Safety Center is concerned that aviators might be using laser pointers in Army aircraft that have not been evaluated. An example of this is the Air Commander's Pointer (ACP-2B). The online advertisement says that the ACP-2B (175mW) is an infrared Class 3b laser pointer designed for aviators and includes a shield to reduce reflections from the canopy and has a calculated range of 18km.

The ACP-2B also has a national stock number (NSN). There's the dilemma. When companies advertise that their laser pointers have an NSN and are designed for combat aviators, some crewmembers might interpret this advertisement as approval for use in Army aircraft.

On 21 July 2004, the Army issued GEN-04-ASAM-01, updating the use of hand-held lasers in Army aircraft while conducting night vision device (NVD) operations. In paragraph 7.6.3, the message states: "Any Class 1 near-infrared (IR) laser is acceptable for use in the cockpits or cargo compartments of Army helicopters, to include the infrared aiming light." It goes on to state: "At the discretion of the pilot in command (PC), lasers other than Class 1 near-IR may be used in the cargo/passenger compartment on UH-1, UH-60, CH-47, or OH-58A/C aircraft IAW unit standing operating procedures (SOP). The PC will include the use of laser pointers in the aircrew mission and passenger brief." This information was originally published in the February 1998 *Flightfax* article "What We Don't Know *Can* Hurt Us," written by CW5 Bob Brooks, who was then the night vision goggles (NVG) Systems Manager at the U.S. Army Safety Center (USASC).

Initially, the use of laser pointers in the cockpit of Army aircraft was prohibited. Because of the unknown hazards, a study was conducted to identify those hazards and their effects on NVGs. Representatives from the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) Laser Program, Communications Electronic Command (CECOM), Program Manager (PM)-Night Vision, and USASC went to Fort A.P. Hill, VA, to test numerous lasers.

CHPPM conducted testing of laser pointers by measuring the amount of energy reflected when individual lasers were fired through the aircraft windscreens. CHPPM also measured the amount of energy reflected off the glass from instruments located in the cockpit. Representatives from CECOM, PM-Night Vision, and USASC measured the amount of NVG-resolution degradation caused by each of the laser pointers tested. They tested Class 1, 3a and 3b lasers. The group determined that Class 1 near-IR lasers could be used in the cockpit without degrading the NVGs and in the cargo/passenger compartment of Army aircraft. However, the test results showed that all other Class 2, 3a, and 3b lasers could only be used in the cargo/passenger compartments of the UH-1, UH-60, and CH-47.

The Radiation Safety Performance Standard issued by the Food and Drug Administration (FDA) governs laser products sold in the United States. The FDA issued an exemption in 1976 from the provisions of the FDA standard for certain military laser products. Class 3b laser pointers cannot be sold in the United States unless they are exempt from the FDA Standard. In order for these devices to be exempt, they must be classified by CHPPM and evaluated for compliance with MIL-STD 1425a. CHPPM will then issue recommendations, which will include control measures for the safe use of this laser product.

CHPPM has recently conducted a non-ionization radiation protection study of the ACP-2B laser pointer and they have recommended that this laser system NOT be used in the cockpit of aircraft. If laser pointers are to be used by Army personnel—especially in Army aircraft—they MUST be evaluated by CHPPM so they can identify the hazards associated with these devices.

As you can see, there are a lot of requirements that have to be met before the laser systems can be utilized in Army aircraft. I'm sure there are also a lot of other lasers out there like the ACP-2B being used by Army aviators.

Conclusion

CHPPM are the "go to guys" when it comes to laser pointers. You can go to their Web site located at **http://chppmwww.apgea.army.mil/laser/laser.html**. If you or your unit have purchased laser pointers and are not sure if you can use them in Army aircraft, contact CHPPM. The next time you are online or browsing through a catalog for the purpose of purchasing a laser pointer, remember "**BUYER BEWARE**!" ♦

—CW5 (Ret) Ramsey is a System Safety Manager in the Aviation Systems and Accident Investigation Division. He may be contacted by calling DSN 558-2932 (334-255-2932) or e-mail william.ramsey@safetycenter.army.mil.

NCOs Play Important Role in Risk Management

Whether a unit is planning a 4-day weekend or a deployment into a faraway desert, there is risk in almost everything, and that risk needs to be assessed. The unit leadership must identify the hazards threatening both the Soldiers and the mission, and ways to mitigate those hazards need to be found. Unfortunately, the mistake many units make is stopping their risk management process after they complete the risk assessment.

Conducting a risk assessment only covers the first two steps of the risk management process. This is where units get in trouble. They stop there because they think they've accomplished risk management.

The risk management process is a 5-step continuous process. The first step is to identify the hazards of a mission. Hazards are any real or potential conditions that can cause injury, illness, mission degradation, damage to or loss of equipment or property.

There are a number of ways to identify hazards. One is through experience. If a leader has been involved in a similar mission, he should have an idea of which hazards to expect. Using their experience to help identify hazards is one of the ways NCOs can play a big role in the risk management process. NCOs have been out in the field; they've done the missions hundreds of times, and they probably have 10 times the experience their commander does. NCOs can help by informing his commander of past hazards and recommending controls they've used effectively.

Another way to identify potential hazards is through historical data. At the end of every mission or exercise, there should be an after-action review (AAR). The AAR provides a record of hazards that occurred the last time the unit conducted a similar mission. One more way to identify hazards is through intuitive analysis, or your "gut feeling."

The best way is to use the hazard identification tools on the Army Safety Center Web site located at **https:/safety.army.mil**. Once the hazards have been identified, the second step in the risk management process is to assess the hazards—to determine the possible impact of each hazard based on the hazard's probability and potential severity. The Safety Center's Web site also provides a risk assessment matrix that helps categorize hazards according to severity and probability.

You must ask yourself how this will affect your Soldiers, because if it affects your Soldiers, chances are it will affect your mission. A suggestion might be to rate a hazard higher and have more controls in place than risk having a Soldier injured.

The third step in the risk management process is to develop controls that reduce either the probability or the severity of the hazard. An example of a control measure might be to schedule a 10-mile march for the early morning when temperatures are cooler than they would be later in the day. By moving the activity to a cooler part of the day, the likelihood of a heat injury is reduced.

At the NCO-level, it's important to be aggressive in making the chain of command aware of potential risks, Soldiers' prior injuries for example, so they can make informed decisions when putting controls in place.

The fourth step in the risk management process is to implement controls. NCOs and the Army as a whole are good at identifying and assessing hazards and coming up with controls. However, implementing controls sometimes gets pushed aside. Implementing controls is done through regulations, policy letters, standard operating procedures, orders, briefings, back-briefs, training and rehearsals. NCOs shouldn't think they don't have a role in this process because they do. NCOs are first-line supervisors. They're the ones with their boots in the mud.

The fifth step in the process is to supervise and evaluate. Supervising and evaluating is one of the most often neglected steps in the process. It means enforcing implemented controls, while evaluating, adjusting, and updating when necessary. This is another part of the risk management process where NCOs play a key role. NCOs are the enforcers of the standard. The squad leaders, platoon sergeants, and team leaders are the ones out working with the Soldiers. The commander can't always be there and the Soldiers are more apt to talk to their NCOs than to their commanders about any new hazards that might come up or which controls aren't working.

Supervising and evaluating is a continuous process because as soon as the mission starts, the situation changes. New hazards arise, the weather changes, or the controls you implemented don't' work. When the mission is over, units should always conduct an AAR. This will provide the historical data for future missions and help reduce risks. ♦

—Adapted from the Jan 04 *NCO Journal*

A Salute to NCOs

CW4 Dan Fessler
F Co., 1-212th Avn. Regt.
Fort Rucker, AL

First, I would like to thank MSG Shane Curtis for his many years of service to Army Aviation and the U.S. Army Safety Center. Second, the non-rated crewmember (NCM) standardization instructor (SI) should be recognized as a leader of troops. They have the responsibility to commanders, pilots, platoon sergeants, and crew chiefs of an entire aviation company, if not a battalion, to ensure every non-rated crewmember is prepared to perform their flight duties to win and survive. NCOs, this is a leadership position.

Third, I would like to address commanders. I am the flight commander of the UH-60 Non-rated Crewmember Instructor Course (NCIC). As a former NCO and current standardization instructor pilot, I eagerly accepted this job. The UH-60 Instructor Pilot Course (IPC), which I have taught for 2 years, has achieved success in sending qualified, competent trainers and evaluators to the line. NCIC intends to mirror that success. We need to get the word out on this course and get the number of "school trained" (N1 identifier) non-rated flight instructors and standardization instructors (FI/SIs) embedded into the line units. We provide the student a broad base of standardized instruction in 34 academic subjects; e.g., fundamentals of instruction (FOI), methods of instruction, aircrew training program (ATP), door gunnery, environmental operations, aircraft systems, and aircrew coordination, to name a few. The day, night, and NVG flight instruction, flown concurrently and interactively with the UH-60 IPC, promotes an increased emphasis on instructor qualities. Flight training focuses on properly instructing and evaluating 31 of a typical unit's base and common mission tasks, including multi-aircraft operations, internal and external loads, evasive maneuvers, actions on contact, masking, and terrain flight.

To improve survivability on today's battlefield, commanders must focus on two main areas: ATP and standardization. Upon attending LTC James Kenney's (DCoS, USAAVNC) and COL Steven Dwyer's (Commander, 1st AVN BDE) briefings on Operation Iraqi Freedom and Operation Enduring Freedom shoot-down lessons learned, it was very apparent that the crew coordination desirable to survive an engagement requires optimum communication and response from the crew. The UH-60, by design and regulation, will always be a "two-pilot" aircraft. The importance of a well-trained crew chief and door gunner cannot be overstated. The small arms rocket-propelled grenade and heat-seeking threat are paramount. Recently redeployed IPC and NCIC students have said, "Non-combatant targets in the crowd have waved and cheered as the Black Hawk passed, then leveled barrels on us from the 6 o'clock." The 4 to 8 o'clock position is one that neither pilot can observe. The well-prepared NCM is vital during combat. The "flash to bang" is minimal, requiring immediate coordination between the crew to evade the threat. We have included evasive maneuvers and actions on contact training to our program of instruction, with an emphasis on crew interaction.

ATP and standardization: These are the reasons this course was developed. For years, two standardization shortcomings on the NCM side of the house have been their inability to accurately complete forms and records (in accordance with Training Circular [TC] 1-210, "ATP") and a lack of complete knowledge of the Aircrew Training Manual tasks, conditions, standards, and descriptions (TC 1-212, "Standardization"). I have had the pleasure of working with many fine FI/SIs and even trained a few, but the fact is that Mr. IP in A Company and Mr. IP in B Company have

a different perspective on signing off an FI and the requirements entailed. Recently, we had several current unit-trained FIs coming through the course that were not trained or evaluated on FOI or the learning process. This does not comply with Chapter 8 of TC 1-212, "Evaluation." This discrepancy has led to a lack of standardization throughout the Army and even within the same unit. We learned from the success of the IPC (standardized and school-trained) to better support the commander's intent; therefore, we have the fortune of implementing a course that corrects these shortcomings.

Finally, as I continue to train future UH-60 IPs, FIs, and SIs to become advisors to unit commanders on training their Soldiers for war, let us not overlook the valuable asset and combat multiplier a well-trained non-rated crewmember adds to your unit's goal of winning and coming home alive.

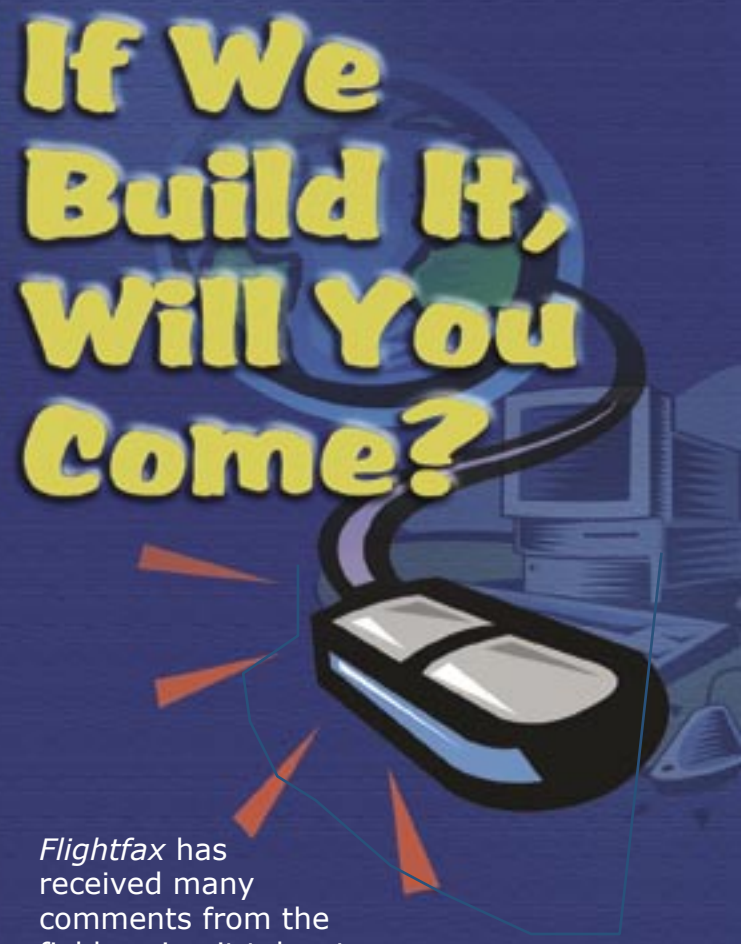
FY05 Course Dates

Class	Report	Start	End
05-001	02 Nov 04	03 Nov 04	08 Dec 04
05-002	02 Jan 05	03 Jan 05	02 Feb 05
05-003	14 Mar 05	15 Mar 05	15 Apr 05
05-004	10 May 05	11 May 05	14 Jun 05
05-005	07 Jul 05	08 Jul 05	10 Aug 05
05-006	01 Sep 05	02 Sep 05	05 Oct 05

More information on the NCIC can be found at the following Web sites:

- **https://www.us.army.mil/portal/jhtml/FileLoader.jhtml?kcid=630562**
- **https://rucker-dtac.army.mil/uh60ncic/**
- **https://www.atrrs.army.mil/atrrscc/courseinfo.asp?fy=2004&sch=011&crs=600%2DF16&crstitle=UH%2D60+NON%2DRATED+CREWMEMBER+INSTRUCTOR&phase** ♦

—SFC Kordonowy is the NCOIC for NCIC and may be contacted via e-mail at micheal.kordonowy@rucker.army.mil. CW4 Fessler may be contacted via e-mail at daniel.fessler@rucker.army.mil. The NG Rep at EAATS may be contacted via e-mail at jeffrey.doyle@pa.ngb.army.mil.



Flightfax has received many comments from the field saying it takes too long to download information from the Safety Center Web site. We have recently solved that problem. Our Web Technology staff created a smaller and more efficient Web site for use in low bandwidth situations. They removed all images from the "frames" of the existing site and took advantage of newer coding practices to make the site smaller, yet still have dynamic navigation.

Taking these measures brought our Web site from 186K total load size to less than 70K (63% roughly). This is more acceptable for a low bandwidth (modem) user. We will continue to provide low bandwidth versions whenever possible. Check it out at **https://safety.army.mil.mil/lite**.

For more information, contact the Webmaster at DSN 558-2098 or e-mail webmaster@safetycenter.army.mil.

Field "Fix" for Intermittent Communication Signals in the CEP

Ben Mozo
Communications and Ear Protection, Inc.

The communications earplug (CEP) is a device that is used to improve hearing protection and speech communications in the high noise environments found in helicopters. It includes miniature transducers that reproduce speech signals from the aircraft intercommunication system (ICS). The foam tip acts as a hearing protector, providing 30dB of suppression when properly inserted in the ear canal. It contains a pathway for communication sound signals to travel from the transducer to the ear, thus permitting quality sound at safe levels to reach the user.

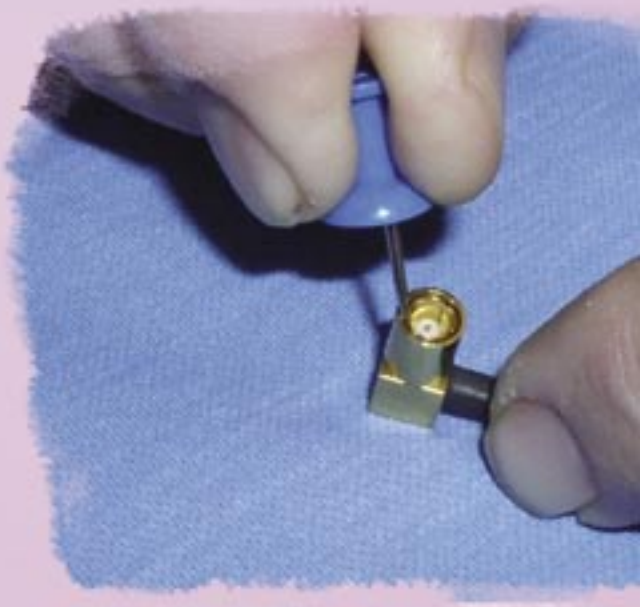
The CEP has been deployed for aviation use since 1999, when it began to be manufactured in quantity by Communications and Ear Protection, Inc. Presently, there are approximately 50,000 units in the field. The CEP has proven to be a very reliable system, and with proper care, many units have and are performing past their projected operational life of 5 years. However, with continued use and in spite of their robust design, users may experience an intermittent signal from the earplugs, primarily when they turn their heads. In most circumstances, this is caused by poor contact in the right angle connector at the point where the earplug connects to the helmet. With continued and extended use, connecting and disconnecting this interface sometimes will cause the tabs in the connector to bend away from the center, thus losing contact with the center post of the SMB jack connector on the helmet.

The easiest way to determine if this may be the cause of the intermittent signal is to insert the right angle connector into the SMB jack connector on your helmet. Holding the helmet on a solid surface, grasp the CEP wires approximately 2 inches from the right angle connector and gently move the wires up and down. From this action you should be able to determine whether the connector has a secure fit or if it has become loose due to numerous connections and disconnections. If the right angle connector wobbles in the helmet connector, the tabs need to be adjusted.

If you determine that you have a loose connection, you can make the following adjustments to fix this problem in the field. Using a push-pin as illustrated in the picture below, place the tip between the outer connector ring and one of the four leaf tabs, bending the tab *slightly* toward the center of the connector. Do this for the remaining three tabs as well. Insert the right angle connector to the helmet SMB jack connector to ensure the tabs are not bent too far toward the center to allow the right angle to be seated, but ensuring good compression of the tabs for a positive connection.

This should fix the problem of intermittent signals from your CEP during flight. You should again experience clear and continuous radio and ICS communications. If this operation does not fix your problem, please contact Communications and Ear Protection, Inc., for further assistance. ♦

—Ben Mozo, Communications and Ear Protection, Inc., Enterprise, AL, (334) 347-1688, e-mail bmozo@cep-usa.com, Web site www.cep-usa.com



Accident Briefs

Information based on preliminary reports of aircraft accidents

CH-47

D Model

■ **Class B:** Aircraft was trail in a flight of two when the crew experienced brownout conditions during touchdown. The ramp contacted the ground on the right side during touchdown. Extensive damage was assessed during the post-flight inspection. No personnel were injured.

■ **Class C:** The aircraft's center cargo hook released while in mechanical mode at a hover height of about 60 feet above ground level, causing the aircraft's load to fall to the ground. The aircrew was conducting an external load certification test.

OH-58

D(R) Model

■ **Class C:** During reconnaissance flight at 30 feet above ground level, the aircraft experienced an engine gas generator (Ng) overspeed while in a descending turn in tailwind conditions. The Ng reading was reported at 108 percent for 3 seconds. The engine was replaced.

TH-67

■ **Class C:** The crew reported instrument indication of a chip light during a landing maneuver to a pinnacle. The aircraft's engine then failed. The aircraft descended on a slope, causing damage to the tail boom.

UH-60

A Model

■ **Class B:** Aircraft crashed after losing tail rotor thrust. The aircraft was authorized to be flown/recovered following a tail strut failure on the preceding flight. The strut was secured to the aircraft with a cargo strap, but the strap failed when the aircraft was picked up to a hover. The strap worked its way between the intermediate gearbox and the tail rotor drive shaft. The drive shaft was severed. The crew executed a hovering autorotation to touchdown after losing tail rotor thrust. The aircraft landed upright on its main landing gear, and the crew conducted an emergency shutdown. In addition to the severed drive shaft and tail strut, the aircraft suffered damage to its belly, stabilator, and vertical fin. The crew chief suffered a sprained ankle, but no other crewmembers were injured.

■ **Class C:** Aircraft experienced a hot start with the instructor pilot on the controls. Engine replacement was required.

■ **Class C:** The #2 main generator failed during flight, causing fluid to stop moving to the transmission. The accessory gearbox and input module overheated.

■ **Class D:** Aircraft struck a large bird during flight. One tip cap was damaged beyond repair. The crew did not notice any unusual aircraft characteristics during flight, so the strike was unnoticed until the post-flight inspection.

L Model

■ **Class A:** Aircraft crashed during normal tactical training flight while carrying 11 Marine Corps troop passengers. The crew chief suffered fatal injuries. All other occupants were injured, three with major injuries.

■ **Class C:** Aircraft underwent engine run-up iterations in response to low transmission fluid cockpit indications. All transmission modules required replacement. A final maintenance check identified the transmission fluid had not been replaced during a prior maintenance and flush procedure.

UC-35

■ **Class C:** The aircraft encountered light turbulence about one hour into flight. The pilot reduced the power setting to approximately 96 percent. The other pilot noticed 101.5 percent on the left engine and 101.9 percent on the right engine. The pilot immediately pulled both power levers back. There were no indications of an engine overspeed, and all other indications showed normal ranges. The mission was continued without further incident. During inspection, however, the shading "key" computer showed an overspeed.

Editor's note: **Information published in this section is based on preliminary mishap reports submitted by units and is subject to change. For more information on selected accident briefs, call DSN 558-9552 (334-255-9552) or DSN 558-3410 (334-255-3410).**

"Who's in Charge?"

It shouldn't be a guessing game...
Accountability Starts
At All Levels of Leadership!

paper, rock, scissors